Chapter 17
The Process of Strategic, Agile, Innovation Development: A Healthcare Systems Implementation Case Study

Say Yen Teoh
RMIT University, Australia

Shun Cai
Xiamen University, China

ABSTRACT

Despite many attempts to introduce computerization in the healthcare industry, the majority of the current healthcare information systems still fail to meet the rising expectations of patients for service. This study aims to understand how agility and innovation capabilities can be strategically nurtured, developed, and managed to upgrade the quality of healthcare services. Based on a case study, a process model is developed to explain that an agile innovation strategy is a complex helix process involving a firm's sensitivity and responsiveness to integrating and reconfiguring its resources to cope with innovative change. Three key managerial contributions for IT and medical practitioners are presented.

1. INTRODUCTION

In today's competitive and demanding economic environment, businesses in all industries, including healthcare, are undergoing profound changes. With global expenditure of more than US$6.5 trillion in 2012 (World Health Organization 2012), the healthcare industry is known to be the largest industry worldwide to be undergoing a process of restructuring and reengineering. It is intended to provide better patient services and care through the use of IT. According to the recent Ernst & Young health care industry report (2014), Healthcare Information Technology (HIT), and the data it yields, serves as ballast, holding the ship steady in its journey forward. It further suggested that health care organizations must continue to invest significant capital — human resources, time and money — in information systems

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design, implementation and training (Ernst & Young 2014). Recognizing the scale and continued growth of this industry, along with its potential to transform societal health and wellness levels, Singapore's Ministry of Health has a mission to develop the world's most cost-effective healthcare system to ensure that Singaporeans—the country's key resources—have an ideal state of health (World Health Organization 2007).

Singaporean hospital-industry leaders are seeking ways to explore the opportunities and challenges faced in the development of medical informatics, with minimal guidance or policy directives from the government. Healthcare experts, policymakers, and consumers find that computerization and the automation of health records and health-related processes can critically transform the nature of their industry (Dwivedi et al. 2007; Heathfield et al. 1999). To shape its future, not only must an organization be increasingly agile to detect market changes and opportunities (Sambamurthy et al. 2003) for significantly greater flexibility and responsiveness (Gould 1997), they must also be able to innovate (Lawson et al. 2001). Hence, agility is critical for organizations to sense and respond readily and effectively to future needs (Overby et al. 2006).

The potential for information technology (IT) to enable enterprise agility has received increasing attention from practitioners and academics in recent years (Mathiassen et al. 2006; Overby et al. 2006; Sambamurthy et al. 2003; van Oosterhout et al. 2006). However, despite advances in knowledge about the relationship between IT and organizational efforts to achieve agility, enterprise agility is often treated as a "black box"; empirical validation of this relationship remains rare (e.g. Overby et al. 2006; Seo et al. 2008). The importance of agility in a number of sectors, including healthcare, has been largely ignored. In view of this, agility theory was employed as the theoretical lens to structure this case study of an agile and highly innovative Singaporean hospital.

The case study was conducted with a private hospital that successfully designed and injected agile and innovative philosophies into its healthcare system. This hospital had received a record high level of patient complaints and did not have a fine IT system before its changes to transform itself for greater agility and innovation. It developed various agile and innovative capabilities, while at the same time creating a health information system (HIS) which suited its strategic needs. In each phase, the agile and innovative capabilities directly contributed to the achievement of its strategic goals in upgrading its healthcare services, and it also facilitated the HIS implementation. Through this parallel process, the development of agile and innovative capabilities and the new HIS jointly contributed to the hospital's success in transforming a record high level of patient complaints to becoming the best hospital in the Singaporean Ministry of Health Patient Satisfaction Surveys from 2004 to 2008.

Agile and innovative transformation motivated this study. This article addresses a research gap by conceptualizing the agility-innovation capability-development process in delivering a strategic information systems implementation in a hospital setting.

2. THEORETICAL BACKGROUND

Today, the demanding nature of patients requires the transformation of the healthcare industry in order to fulfill increasing expectations. One important way to improve healthcare services is to upgrade the service system through the use of advanced information technology (IT) or HIS (Abraham et al. 2011; Heeks 2006; Holden et al. 2010; Lee et al. 2011; Lluch 2011). Unfortunately, the healthcare community